Complete Summary

GUIDELINE TITLE

Adapting your practice: treatment and recommendations for homeless patients with asthma.

BIBLIOGRAPHIC SOURCE(S)

Judge D, Brehove T, Kennedy G, Langston-Davis N, Reyes T, Strehlow A, Post P, editor(s). Adapting your practice: treatment and recommendations for homeless patients with asthma. Nashville (TN): Health Care for the Homeless Clinicians' Network, National Health Care for the Homeless Council, Inc.; 2008. 32 p. [23 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Bonin E, Brammer S, Brehove T, Hale A, Hines L, Kline S, Kopydlowski MA, Misgen M, Obias ME, Olivet J, O'Sullivan A, Post P, Rabiner M, Reller C, Schulz B, Sherman P, Strehlow AJ, Yungman J. Adapting your practice: treatment and recommendations for homeless patients with asthma. Nashville (TN): Health Care for the Homeless Clinicians' Network, National Health Care for the Homeless Council, Inc.; 2003. 28 p. [11 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Asthma in homeless patients:

- Adult asthma

- Pediatric asthma

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Treatment

CLINICAL SPECIALTY

Allergy and Immunology
Emergency Medicine
Family Practice
Internal Medicine
Pediatrics
Pulmonary Medicine

INTENDED USERS

Advanced Practice Nurses
Emergency Medical Technicians/Paramedics
Health Care Providers
Nurses
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Public Health Departments
Respiratory Care Practitioners
Social Workers
Students
Substance Use Disorders Treatment Providers

GUIDELINE OBJECTIVE(S)

To foster better health outcomes for homeless adults and children with asthma by adapting standard clinical practices to address the unique challenges faced by this group and the clinicians who care for them

TARGET POPULATION

Homeless adults and children with asthma

INTERVENTIONS AND PRACTICES CONSIDERED

Note: Refer to the "Major Recommendations" field for context.

Adult Asthma

Diagnosis/Evaluation

1. History including living conditions, working conditions, symptoms and functional impairment, prior diagnosis and treatment; use of inhaled substances (if applicable); treatment during incarceration (if applicable); medical/mental health history, prior providers and health insurance; assessment of literacy, reliability of reported diagnoses, complexity of co-morbid conditions, and use of Emergency Room (ER)/acute care.
2. Physical examination, including forced expiration, evidence of other pulmonary disease, use of peak flow meter to assess lung function, nasal findings, mental health status
3. Diagnostic tests, including spirometry, chest x-ray, tuberculin test (purified protein derivative [PPD]), human immunodeficiency virus (HIV) test, and serology or sputum cultures

Management/Treatment

1. Education and self management, including use of inhalers, spacers, and nebulizers; cleaning nebulizers and spacers; education about smoking and asthma triggers; establishment of treatment goals and asthma action plans; and exploration of barriers to treatment adherence
2. Medication management, including choice of medications, assistance with obtaining medications and storage, simplifying medication regimens, and discouraging use of over-the-counter inhalers
3. Recognition and management of associated problems/complications for which homeless people are at risk, including medication loss, financial barriers to care, functional limitations, communication barriers, and multiple comorbidities
4. Follow-up including documentation of patient contact information, medication control, exploration of potential barriers to treatment adherence and follow-up care, outreach/case management, and collaboration with shelter providers

<u>Pediatric Asthma</u>

Diagnosis/Evaluation

1. Medical and social history, including housing and medical home, environmental assessment, symptoms and allergies, exposure to viral upper respiratory tract infections (URIs), access to health insurance/financial assistance through Federal entitlement programs, special needs, continuity of care, medical history, emergency room (ER) visits, low birth weight (LBW)/prematurity, family health/stress, and nutrition
2. Physical examination, including eyes, lungs, skin, and general exam
3. Diagnostic tests, such as spirometry, measure of lung function with peak flow meters, and allergy testing, tuberculin test (purified protein derivative [PPD]), and testing for human immunodeficiency virus (HIV)

Management/Treatment

1. Education and self-management including educating patients/parents or guardians and service providers about environmental conditions that exacerbate asthma, symptoms of exacerbation, proper equipment use, cleaning nebulizers/spacers, preventing exacerbations, and ER visits;

providing appropriate educational material, log books, written action plans; relieving familial stress; and extending clinic hours
2. Medications including anti-inflammatories, inhalers, spacers, nebulizers, immunizations; assessing medication efficacy, storage, and refill rate
3. Recognizing and managing associated problems/complications including those related to uncoordinated care, antibiotic use during infancy, financial barriers, educational delays secondary to poor asthma control, inappropriately restricted physical activity, and familial stress
4. Follow-up, including encouraging family to find a "medical home," documenting patient contact information, outreach, assessment of preventive medication use/pulmonary function, monitoring school attendance, assistance with entitlements, and coordination of medical care

MAJOR OUTCOMES CONSIDERED

- Emergency care use
- Hospitalizations
- Symptom control (e.g., number of symptom-free days)
- Severity/frequency of exacerbations
- Health disparities between homeless and general U.S. populations

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Searches of MEDLINE, Medscape, SocABS, PsycInfo databases were performed.

NUMBER OF SOURCE DOCUMENTS

This guideline is adapted from one primary source.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The Advisory Committee on Adapting Clinical Guidelines for Homeless Individuals with Asthma discussed relevant research studies published since 2003 and selected references they judged to be most useful in the care of homeless adults and children with asthma.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

In 2002 to 2003, the Health Care for the Homeless (HCH) Clinicians' Network convened an advisory committee of primary care practitioners to develop special recommendations for the care of people with asthma who are homeless. These recommended clinical practice adaptations were reviewed and revised in 2008 to assure their consistency with updated (Expert Panel Report 2007) guidelines for the diagnosis and management of asthma and with best practices in homeless health care.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guideline developer's Advisory Committee identifies, in the original guideline document and in the 2008 update, the clinicians who reviewed and commented on the draft recommendations prior to publication, including experienced Health Care for the Homeless practitioners and medical experts in asthma care. The original guideline was field tested by clinicians in designated Health Care for the Homeless projects during the summer of 2003. Evaluation criteria included clarity, flexibility and ease of use; relevance to the care of homeless clients or those at risk of becoming homeless; inclusion of strategies to promote outreach and case management and ensure follow-up; sufficiently detailed to ensure that similar practitioners would offer similar treatment in the same circumstances; and sufficiently complete to enable new clinicians to use them for homeless clients. Evaluators found that the guideline met all of these criteria and recommended

future development of abbreviated versions of this and other adapted clinical guidelines to facilitate use in a variety of clinical settings.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Adult Asthma

Diagnosis and Evaluation

History

- **Living conditions** - Ask the patient to describe where he or she sleeps. Many homeless people live in environments with asthma triggers, such as mold, dust mites, cockroach feces, animal dander, tobacco smoke, and air pollution. Ask where the patient stores belongings, medications and inhalers. If living in a shelter, ask about rules for medication use/storage. Ask about conditions at the shelter. Do guests sleep on the floor or on beds? Are conditions crowded or unsanitary? Are fans in use?
- **Working conditions** - Ask if and where the patient works; inquire about occupational exposures that may contribute to asthma, such as sweeping, cleaning, and exposure to cleaning solvents, insecticides, herbicides, and fumes. Ask what chores the patient is required to do that trigger or exacerbate symptoms.
- **Symptoms** - Ask what causes and worsens asthma symptoms, whether current treatment works, and if current living situation affects symptoms. Ask if the patient is awakened by a dry cough at night (a frequently overlooked symptom). Ask if he or she is using inhalers and, if so, frequency of use. It is helpful to ask how long a quick-relief inhaler lasts (days, weeks, months). Many patients will report using their short-acting beta agonist only once or twice a day, but the inhaler (which contains 200 inhalations, unless it is a sample inhaler) lasts only one to two weeks, inconsistent with reported usage. Ask if the patient shares inhalers with others.
- **Functional impairment** - Ask specific questions to determine the patient's activity level and the relationship of activity to symptoms. Ask if the patient does anything strenuous and if symptoms interfere with activities requiring physical exertion. Homeless people have to walk a lot and typically do jobs that require physical activity. Shelter accommodations or meal sites may require walking up multiple flights of stairs. It may be helpful to ask if symptoms interfere with "taking care of business."
- **Prior diagnosis, treatment** - Ask when and how the patient was diagnosed with asthma. Ask about the number of emergency room visits, when the most recent emergency room (ER) visit occurred, and about prior hospitalizations. Patients may report they have asthma when in fact their symptoms are related to chronic obstructive pulmonary disease (COPD). Shortness of breath due to panic attacks may also be confused with asthma. Ask about adherence to prior treatment and what the patient does to relieve symptoms if a quick-relief inhaler is not available. Patients who report that opening a window, going outside, or turning on a fan relieves their symptoms may have panic attacks or anxiety rather than, or in addition to, asthma.

- **Inhaled substances** - Ask the patient to specify any inhaled substances, such as tobacco, marijuana, crack cocaine, or glue.
- **Treatment during incarceration** - Ask if the patient has been incarcerated recently, and if so, whether asthma was treated during incarceration and if medications were returned after release.
- **Medical/mental health history** - Take a comprehensive medical history, including cardiac and mental health status and history of gastroesophageal reflux disorder (GERD). Ask whether the patient ever had tuberculosis or exposure to others with active tuberculosis. Ask when the last tuberculin skin test (purified protein derivative), chest x-ray, and human immunodeficiency virus (HIV) tests were done. Ask about tuberculosis symptoms (prolonged cough, hemoptysis, fever, night sweats, weight loss), but realize that cough and weight loss occur frequently among homeless persons for other reasons. Recognize that incarceration, even for a short period of time, increases risk of tuberculosis exposure.
- **Prior and concurrent providers** - Inquire about other health care providers the patient has seen and whether he or she is currently receiving health care at the shelter or other outreach sites. Recognizing the mobility of this population, assess the likelihood that the patient will stay in one place long enough to work on better asthma control. Ask where the patient obtains medications. Pharmacies provide valuable information about providers and medications prescribed as well as the frequency of refills dispensed, but medications may also be dispensed directly by providers at outreach sites.
- **Health insurance** - Ask whether the patient has health insurance that covers prescriptions. Most homeless adults are uninsured or have insurance that does not pay for medications. This can present a serious barrier to treatment.
- **Literacy** - Assess the patient's primary language, literacy level, and ability to read instructions. Patients who are illiterate may not volunteer this information (Klass, 2007). Recognize that some patients may speak but not read English while being literate in another language.
- **Reliability** - Assess the reliability of information provided by the patient. Inhalers or other medications can be sold or traded, providing an incentive for some individuals to seek inhalers when they do not actually have asthma. Carefully worded questions elicit answers which will assist in identifying those seeking inhalers for recreational use. Ask, "How is your sleep?" rather than "Do you cough during the night?"
- **Complexity** - Acuity, multiplicity of health conditions, and sporadic follow-up of homeless patients complicate taking a good history and prioritizing treatment goals.
- **Emergency Room/acute care visits** - Assess the patient's use of hospital emergency rooms, urgent care clinics, and/or other clinics to help evaluate symptom control and adequate treatment. Establish relationships with local emergency rooms to facilitate communication.

Physical Examination

- **Forced expiration** - Take sufficient time for observation to assure accuracy and reproducibility of exam.
- **Other pulmonary disease** - Look for clubbed fingers and barrel chest as clues to pulmonary disease other than asthma. Bronchitis, emphysema, and/or tuberculosis, frequently seen in homeless patients, may mimic asthma symptoms.

- **Peak Flow Meter (PFM)** - PFMs are useful in the clinic to assess lung function and document improvement. Dispensing them for self care is not always useful, since PFMs are expensive, easily lost, and require a high level of motivation to use. Recording results of serial PFM measurements is impractical for many homeless people. Ask if the patient would find a PFM useful.
- **Nasal findings** - Inspect the nasal mucosa; chronic sinusitis or nasal inflammation/irritation due to drug inhalation may contribute to symptoms and complicate asthma control.
- **Mental health status** - Assess for cognitive deficits secondary to substance abuse, mental illness, trauma, and/or developmental delay that may compromise understanding and treatment adherence. Be familiar with signs and symptoms of substance abuse/dependence and short- and long-term effects of psychoactive substances (see: http://www.drugabuse.gov/drugpages.html).

Diagnostic Tests

- **Spirometry, chest x-ray** - Although spirometry is recommended for diagnosis of asthma and chest x-ray may be desirable to evaluate for other pathology, many homeless patients do not have access to these diagnostic tests because of lack of health insurance and financial resources, lack of transportation, and priorities that do not include diagnostic testing. Patients who cannot or will not adhere to recommendations for diagnostic testing should be treated on the basis of history, physical exam, and measured office peak flow compared to predicted peak flow.
- **Purified protein derivative (PPD)** - Screen for tuberculosis in patients with a chronic cough. A negative PPD does not rule out tuberculosis; obtain a chest x-ray for symptomatic patients, especially if they are HIV positive or otherwise immunosuppressed.
- **HIV test** - Optimally, offer testing in a setting where facilities, expertise, and support are available to provide HIV care.
- **Serologies or sputum cultures** - When indicated, consider respiratory infections that cause chronic cough. Be alert to common infectious respiratory diseases in your region and in regions where the patient has lived, such as histoplasmosis in the Midwest and coccidiomycosis in the Southwest and California. Homeless people may travel from region to region and may have recently come from an area of endemic disease.

Plan and Management

Education, Self-Management

- **Inhaler use** - Ask the patient to demonstrate inhaler use at every visit; if incorrect, demonstrate correct use. Using street terminology to explain the correct method may be helpful; for instance, if the patient smokes marijuana or cocaine, compare inhaler use to "taking a big hit off a joint or crack pipe." Make sure the patient understands how to distinguish different types of inhalers and how each should be used.
- **Spacers** - Many patients find spacers bulky, breakable, and difficult to carry. Seek alternative medication delivery modalities. Plastic water bottles with a hole cut in the bottom may be used as spacers; clients can discard these and

make new ones as needed (Zarr, Asmus, & Weinberg 2002; Duarte and Camargo, 2002).

- **Nebulizers** - If used properly with inhalers, spacers can provide medication delivery equivalent to nebulizers. However, some patients require nebulizers for symptom relief. Health insurance coverage is generally necessary to obtain a nebulizer. Work with shelter staff and other service providers to provide a place for nebulizers to be used and stored. Consider giving daily or twice daily nebulizer medication treatments in the clinic, especially if the patient is unable to obtain his/her own nebulizer and the clinic is readily accessible, as in a shelter-based clinic.
- **Cleaning nebulizers and spacers** - Teach the patient how to properly cleanse nebulizers and spacers with vinegar and water, in equal proportions. Nebulizers and spacers should be disassembled, rinsed in solution, and dried rather than left on the floor. Give the patient a bottle of vinegar or make it available in shelters, since homeless people may not be able to obtain vinegar.
- **Smoking** - Do not assume that homeless patients are not interested in smoking cessation, although it may be a lower priority than meeting survival needs. Studies show that smoking cessation interventions can be successful and do not increase relapse risk for recovering substance users. If the patient is not ready to quit smoking, promote harm reduction by encouraging him or her to reduce the number of cigarettes smoked daily. Document at every visit the patient's motivation and level of confidence in his or her ability to stop using tobacco products, on a scale of 1 to 10.
- **Educate shelter staff** - Inform staff about factors that trigger asthma symptoms and engage them in decreasing asthma triggers: limit residents' exposure to dust and cleaning solutions, provide no-smoking areas, and inspect for and eradicate mold and pests. Offer smoking cessation intervention to shelter staff.
- **Patient goals** - Encourage the patient to select his or her own treatment goals, even if they differ from the provider's goals or are prioritized differently.
- **Asthma action plan** - Ask the patient what he or she would do if an asthma attack did not respond to a rescue short-acting beta agonist. Provide guidance, preferably written, in language the patient can understand. Consider developing a symptom-based action plan (See Expert Panel Report [EPR] 2007, Sec. 3, Comp. 2, 25-27) for homeless patients unless they are able and motivated to use a peak flow meter. Symptom-based action plans have been demonstrated to be comparable to peak flow-based action plans. To maximize the patient's ability to retain and use the action plan when needed, provide a written plan appropriate to the patient's literacy level, illustrated with photographs or other graphics, on an easily stored, wallet-size card.
- **Standard questions** - At the end of every clinic visit, ask the patient, "Is there anything we talked about today that is unclear? Is there anything in the plan of care that will be difficult for you to do?"

Medications

- **Choice of Rx** - Use the simplest medical regimen possible to facilitate adherence to treatment. Use whatever medications are appropriate and

available to the patient, considering medication expense and duration of treatment.

- **Inhaled corticosteroid (ICS)** - There is strong evidence that inhaled corticosteroids improve long-term outcomes for persons with asthma (EPR 2007, 2002). Nevertheless, these anti-inflammatory medications are frequently under prescribed by practitioners and underused by patients. Prescribe controller medications according to standard clinical guidelines (EPR 2007, 2002, 1997), recognizing that homeless patients are at especially high risk for inappropriate or insufficient preventive treatment and may rely unnecessarily on acute care. Educate the patient about the importance of preventive rather than crisis management of asthma. Homeless patients may dislike ICS because some taste bad, or value immediate relief more than prevention and assume that ICS "don't work" as well as controllers. Although this is frustrating for the clinician, repeated explanation, encouragement, and support may promote adherence.
- **Short-acting beta-agonists** - Because of their immediate effect, patients usually like short-acting beta-agonists. Homeless providers should recognize the potential for abuse of these inhalers because of their quick action and their street value. Use creative ways to monitor the number of inhalers used while optimizing symptom control. Offer alternative forms of treatment (nebulizers, if possible, or oral drugs) for patients who are misusing short-acting beta-agonists.
- **Long-acting beta-agonists** - Be cautious about prescribing long-acting beta-agonists because of the danger of overuse, which can happen inadvertently if multiple inhalers are confused. Be sure that the patient understands not to use this inhaler for rescue.
- **On-site provision** - Dispensing medications on site is more effective than sending homeless patients to the pharmacy with a prescription.
- **Medication storage** - Some controller medicines are dry powders that need to be stored in cool, dry places, a barrier to their use by some homeless people.
- **Medication reconciliation** - Ask patients to bring all medications to every visit, including those obtained from other providers, to facilitate identification of drugs which may exacerbate asthma (nonsteroidal anti-inflammatory medications, beta blockers) or have side effects that mimic asthma symptoms (angiotensin converting enzyme inhibitors).
- **Immunizations** - Influenza and pneumococcal disease can exacerbate asthma. Homeless people with asthma are especially vulnerable to these diseases, given their high risk for exposure to respiratory infections in congregate living situations. All asthma patients should be immunized against influenza annually. Asthma alone is not an indication for pneumococcal vaccine unless the patient is on oral steroids or also has COPD.

Associated Problems/Complications

- **Lost, stolen, misused medications** - Recognize that albuterol is valuable on the street for enhancing a crack cocaine high; and medications are often lost or stolen, on the street or in shelters, or may be confiscated by law officers during a police stop or arrest.
- **Financial barriers** - Many homeless patients lack health insurance or do not have prescription drug coverage. Provide assistance in applying for Medicaid and other entitlements for which the patient may be eligible. Resources for

obtaining reduced-cost medications for uninsured patients include the US Department of Health and Human Services' 340B Pharmaceutical Discount Program (See http://www.hrsa.gov/opa/), state pharmaceutical assistance programs (SPAPS) (See http://www.ncsl.org/programs/health/drugaid.htm), and pharmaceutical companies' patient assistance programs (PAP) for low-income individuals. If possible, assign a staff member to master and assist patients with PAP paperwork, which is different for every company. Some companies will waive the requirement to provide tax documents if a letter documenting the patient's homelessness is included with the application. Medication obtained through a PAP is usually mailed to the patient or the clinic; therefore, the patient must either have a mailing address or provide other contact information so the clinic can notify him or her when the medication arrives. Medication samples can also be used, but samples may not be consistently available, compromising ongoing care. Some large retail pharmacies offer low prices for generic medications (for example $4 for a 30 day supply). Investigate prices at large regional discount retailers.

- **Transience** - Homeless people are often mobile, compromising routine asthma management and making episodic, crisis care more likely. However, providers should not be discouraged by this, and should continue to educate homeless clients about asthma control.
- **Functional impairments** - Cognitive deficits secondary to substance abuse, mental illness, trauma, and/or developmental disability may limit understanding of the disease process and compromise adherence to treatment. These should be taken into account when treating asthma. Involving case managers and outreach workers may be helpful.
- **Literacy/language barriers** - Create a sensitive, "shame-free" environment in which individuals can feel comfortable revealing any difficulty they may have with reading. Assess literacy by encouraging the patient to read something for you. If written educational materials are not available at an appropriate literacy level or in the patient's primary language, consider using pictograms; but make sure the patient understands the pictures before leaving the clinic or other site of care.
- **Treating gastroesophageal reflux disorder (GERD)** - Although GERD can trigger asthma symptoms, it is challenging for homeless patients to control their diet and to change their sleeping position. It may be helpful to engage shelter and feeding program staff in assisting patients with GERD.
- **Transportation** - Lack of funds for transportation may compromise homeless patients' ability to keep follow-up appointments. Offering transportation passes or coordinating with outreach workers may be helpful.

Follow-up

- **Regular follow-up** - Routine follow-up is recommended for all asthma patients, but many homeless patients return only during crises or exacerbations. Explore barriers to follow-up with the patient. Explain the importance of routine follow-up and self care to prevent future crises. Consider providing incentives, such as food gift certificates, bus tokens, or toiletries, for keeping follow-up clinic appointments. Consider providing walk-in services.
- **Contact information** - At every visit, ask where the patient is staying and how he or she can be contacted (address, phone/cell phone number, e-mail address, emergency contact, case manager's name and number, shelter

phone number). If the patient is sleeping outdoors or in a vehicle, find out where outreach workers may be able to locate him or her.

- **Medication control** - Ask patients to return, even for brief follow-up, before their inhalers run out; this may minimize inhaler abuse that occurs with multiple authorized refills and decrease the use of over the counter (OTC) bronchodilators.
- **Outreach, case management** - Include medication adherence in the case management plan. Coordinate the plan of care with outreach workers, social workers, and case managers.
- **Shelters** - Establish rapport with shelter staff to facilitate rescue care; ask them to store nebulizers and remind clients to take medications. Assure shelter staff that this does not constitute "dispensing" medications. Urge shelters to provide smoke-free spaces, use allergen-impermeable mattress/pillow covers, launder bedding weekly in hot water (>140 degrees F), repair dripping faucets, and keep humidity below 50% to reduce proliferation of vermin and molds.

Pediatric Asthma

Diagnosis and Evaluation

History

- **Housing and medical home** - Ask specific questions to determine whether the family is homeless, such as: "Where do you live? Who lives where you live? How long have you lived there? Where did you live before?" At every visit, document the patient's housing status and living conditions, list barriers to consistent treatment, and ask if the child has a "medical home" (regular source of primary care). If so, ask whether access to this primary care provider is limited by a change in health insurance, lack of transportation, or lack of accessible hours. Ask questions in several different ways to elicit desired information.
- **Environment** - Clearly document environmental factors that may trigger or exacerbate the patient's asthma. Ask the family about mold, dust, cockroaches, mice, and proximity to tunnels and busy highways in the place where they live. If the family lives in a shelter, ask for a description. Basement shelters have more mold. Ask whether any member of the household smokes cigarettes, marijuana, crack cocaine, or other substances. Ask whether there is somewhere they can plug in a nebulizer. If the patient has been seen before, ascertain whether environmental conditions have improved or deteriorated.
- **Viral upper respiratory infections (URIs)** - Viral upper respiratory infections, common among young children, are the most common trigger of asthma exacerbations, and can cause wheezing independently of asthma. Ask if the patient lives in a shelter or spends time near others who are sick. Living in shelters increases risk of exposure to URIs.
- **Entitlements** - Explore the child's or family's access to entitlements, including Medicaid, State Children's Health Insurance Program (SCHIP), or supplemental Security Income (SSI), to determine possible eligibility for health insurance and financial assistance with permanent housing. In many states, most homeless children are eligible for Medicaid or SCHIP if they are US citizens or in the US legally. Ask how the family obtains medicine.

- **Special needs** - Assess the patient's special needs, including possible developmental delays.
- **Continuity of care** - Ask who has provided medical care for the child in the past; have the parent/guardian sign a release of information to obtain the records. Try to allay confusion about different drugs prescribed or different information conveyed by multiple providers.
- **Medical history** - Try to locate medical records quickly, but don't wait for them to be found. Aggressively inquire about the patient's medical history: current medication use (especially controller use), dosage and interval; previous hospitalizations, intensive care stays and intubations; and immunization history. Ask specifically about gastroesophageal reflux disorder (GERD), eczema and allergic rhinitis, comorbidities which may individually worsen asthma or be harbingers of an atopic profile.
- **Emergency room/acute care visits** - Assess the patient's use of hospital emergency rooms, urgent care clinics, and/or other clinics for "urgent/acute" care visits to help establish symptom control and adequate treatment. Ask at what time of day and under what circumstances acute visits have been needed. Ask if any oral steroids were prescribed during ER/acute care visits as an indicator of risk for further asthma exacerbations.
- **Low birth weight (LBW)/prematurity** - Ask whether the child was smaller than normal at birth or born prematurely. LBW is related to respiratory problems in infants, and babies born to homeless mothers are at higher risk of LBW. Ask if the child was intubated or needed oxygen during the neonatal period.
- **Family health/stress** - Ask about other health or social problems of family members, and help the parent/guardian prioritize the family's needs. Elicit information about social stress, which can exacerbate asthma, and relationship problems, including interpersonal violence. Chronic illness in a child increases that child's risk of abuse.
- **Nutrition** - Ask where the family gets food and what kinds of food the patient eats.

Physical Examination

- **General** - Use every patient visit as an opportunity for a general physical exam, including lungs, skin, height, weight, head circumference, developmental surveillance and screening recommended by standard clinical guidelines such as American Academy of Pediatrics guidelines (http://aappolicy.aappublications.org/), and Early and Periodic Screening, Diagnosis and Treatment (EPSDT) services (http://www.cms.hhs.gov/MedicaidEarlyPeriodicScrn/) required for children on Medicaid. This may be your only contact with the patient; many homeless children rarely see a primary care provider due to mobility and limited access to health care.

Diagnostic Tests

- **Spirometry** - This is the recommended tool for diagnosis and is very important to assess reversible airway obstruction. If your clinic cannot afford a spirometer, explore collaboration with another facility that has one, consider writing a grant to purchase a spirometer, or seek donated equipment. If

spirometry is not available, do not wait; treat on the basis of history and physical exam. If available, do spirometry at the initial visit.

- **Peak flow meters (PFMs)** - PFMs provide reliable measures of lung function only when used routinely, with results recorded. As with adults, there may be barriers to storage and use. When possible provide the patient with a complementary peak flow meter or prescription for the PFM.
- **Allergy testing** - Testing should be considered when available, to identify any allergens that trigger the child's asthma symptoms. The high rate of asthma in homeless children is thought to be related, in part, to the presence of mold, animal dander, dust, cockroaches, and smoke in shelters or other living situations. Homeless families may have less control over their environments than housed families. Children with unexplained, persistent asthma symptoms should be referred for allergy testing.
- **PPD** - Perform TB skin testing (purified protein derivative), which is often required for admission to shelters, recognizing homeless children's higher risk for exposure to tuberculosis.
- **HIV test** - Test children of an HIV-positive parent, if not already tested.

Plan and Management

Education/Self-management

- **Living conditions** - Explain to the parent/guardian and caregivers how living conditions, especially exposure to cigarette smoke, worsen asthma symptoms. Suggest ways to minimize the child's exposure to second-hand smoke; encourage smoking cessation or smoking out of doors. Explain that cockroach feces are a common trigger of asthma symptoms. Advise moving the patient's pillow to the end of the bed not adjacent to a wall, where cockroaches are more likely to be found. Let the parent or guardian know that rugs can be a problem. Recommend mattress and pillow covers to keep allergens confined. Damp dust when the child is not in the room, and avoid exposing the child to household cleaners.
- **Symptoms** - Educate the parent/guardian about signs and symptoms of asthma exacerbation, such as night-time/early morning cough, post-tussive emesis, shortness of breath (only able to talk in short sentences), wheezing. Audible wheezing is a late sign. Teach the child to recognize his/her own symptoms. Many parents/guardians recognize when their child's symptoms are likely to flair. Educate them about recognizing symptoms and implementing an action plan, such as providing a nebulizer treatment or starting oral corticosteroids, instead of waiting until the child has a full blown attack.
- **Proper equipment use** - Teach the patient/parent/guardian how to use a metered dose inhaler (MDI), dry powder inhaler (DPI), spacer, or nebulizer with face mask for an infant or younger child: Provide an index card or a sticker to put on the pump with directions for use. Document training and demonstration of correct use of inhalers and spacers. Have replacement filters for the nebulizer available. Evaluate the parent/child/guardian's use of the nebulizer at every visit.
- **Cleaning nebulizers/spacers** - Teach parents/guardians how to cleanse nebulizers and spacers properly, with vinegar and water, in equal proportions. Instruct them to take nebulizers and spacers apart, rinse in solution, and dry rather than leaving them on the floor. Give them a bottle of vinegar or make

it available in shelters; homeless families may have difficulty obtaining vinegar on their own.

- **Educational materials** - Make sure the patient/parent/guardian can read and understand any written materials you provide (Klass, 2007). Ask simple questions to assess their understanding. Use existing resources for patient education materials (e.g., EPR, 2007, Sec. 3, Comp. 2, 30-31,36-38) or develop your own that are appropriate to literacy level and primary language.
- **Education of service providers** - Advocate for improvements in places where homeless children live, receive childcare, and attend school. Educate shelter staff about controlling environmental conditions that exacerbate asthma: by prohibiting smoking in shelters, using allergen-impermeable mattress covers, washing sheets weekly in hot water over 140 degrees F to kill dust mites, repairing leaking faucets, maintaining humidity below 50% to reduce proliferation of vermin and mold, and sealing doors to keep out cockroaches, rodents, and other vermin. Educate staff at childcare centers and schools about how they can help children with asthma avoid exacerbations and cope with stresses associated with homelessness.
- **Extended clinic hours** - Accessible clinic time (evenings, weekends) is essential for parents/guardians who cannot take daytime hours off for clinic appointments without risking their jobs. Inform them about accessible appointment, walk-in, or call-in hours.
- **Written log** - Consider asking the parent to keep a log of the child's asthma symptoms and record what seems to make them worse. Some homeless parents keep written logs diligently; others do not. Give families a log book.
- **Action plans** - Educate the patient/parent/guardian about the plan of care. Explain the care plan in language they can understand and provide written action plans to help them remember special instructions for administering medications and preventing/dealing with asthma exacerbations. Use of both written and oral information can help reduce barriers to taking or administering medications (Sleath et al., 2006). To reduce language and literacy impediments, use graphics and simple language (Klass, 2007). Wallet-size instruction cards may be easier to retain and access when living in shelters with limited storage space.
- **Prevention** - Make the parent/guardian aware of increased risks when a child with asthma is exposed to people with respiratory infections (colds, flu). Explain that nasal discharge is extremely contagious; infectious organisms can survive up to 6 hours on nonporous surfaces. Encourage frequent hand washing in congregate settings and by caretakers of children. If possible, minimize use of anti-bacterial soaps and hand sanitizers, which may increase bacterial resistance. Encourage covering coughs/sneezes with the crook of the elbow rather than the hand.
- **ER visits** - Instruct the parent/guardian to contact the child's primary care provider, if possible, before taking him or her to the emergency department. Provide phone numbers where a provider can be reached in the clinic or after hours.
- **Standard questions** - At the end of every clinic visit, ask the patient/parent/guardian, "Is there anything we talked about today that is unclear? Is there anything in the plan of care that will be difficult for you to do?"

Medications

- **Anti-inflammatory medications** - Strongly consider daily use of inhaled corticosteroids as a first line controller medication. Oral corticosteroids may be given on an urgent and limited basis. Consider reserving long-acting drugs for children with adequate and knowledgeable supervision of their medication administration. Long-acting bronchodilators should not be used for older children and adolescents who, in the clinician's judgment, are at high risk for overusing them.
- **Inhalers** - When prescribing anti-inflammatory medications and bronchodilators, select MDIs that can be used at the same times of day with the same number of inhalations for all medications prescribed. Make it simple.
- **Spacers** - For improved delivery of metered dose medications, spacers can be made from one liter soda bottles. Using a knife, cut a cross into the base of a soda bottle and fit the MDI snugly into this opening. The patient can inhale the medication from the neck of the bottle after activating the MDI. The improvised spacer can be easily replaced if lost or if the patient cannot carry a spacer with him or her.
- **Nebulizers** - Inquire about housing stability. Does the patient need to leave the shelter at a specified time in the morning and not return until a specified time in the evening? Is a bed guaranteed, or available only by lottery? Is the family at risk of being told to leave the shelter for rule violation or other reasons? Is there a place where a nebulizer can be plugged in and used? Identify resources to replace lost or stolen nebulizers. Use premixed solution bullets for nebulizers to minimize dosage errors and make storage and administration easier.
- **Response to medications** - Teach caregivers how to count the respiratory rate (RR) to assess response to medication. A sustained decrease in RR 15 minutes after treatment indicates that aerosolized medicines are helping.
- **Medication storage** - Educate the patient/parent/guardian about safe storage of medications. Medications are frequently stolen in shelters or may be shared or abused by family members. Ask if shelter staff can store medications and make them immediately available to the patient when needed. Explain that powdered medications should be stored in a cool, dry place.
- **Medication refills** - Assure that prescriptions are written with an adequate number of refills if the parent/guardian is able to get them filled at a local pharmacy, to prevent the patient from running out of medication. Monitor the prescription refill rate to assure that medications are being used at proper intervals, not over- or under-utilized by an unsupervised child or adolescent, or shared/misused by other family members. Be aware that medications may be obtained from other facilities, such as storefront clinics, outreach programs, or emergency rooms.
- **Immunizations** - Keep all immunizations up to date according to standard clinical guidelines (See http://www.aafp.org/). Ensure that homeless children and their family members are given the influenza vaccine each fall. All healthy children under 24 months of age and children under 60 months of age with high risk conditions such as asthma (or other chronic pulmonary, cardiac or renal disease) should also receive the pneumococcal conjugate vaccine (PCV), especially if taking high-dose oral corticosteroid medications.

Associated Problems/Complications

- **Antibiotic use** - Children treated with at least one antibiotic during the first year of life are twice as likely to develop asthma during childhood as infants not treated with antibiotics (Kozyrskyj, Ernst, & Beckeret al. 2007). Homeless children are at higher risk for otitis media and respiratory infections which are often treated with antibiotics. Providers should make sure the use of antibiotics is warranted.
- **Uncoordinated care** - Homeless children typically see many different providers and require a variety of medical and social services. For this reason, they need a "medical home" — a regular source of primary care and a primary care provider to coordinate their health care.
- **Follow-up** - Homeless patients are often mobile and follow-up can be difficult. Establish systems for follow-up, such as a monthly tickler file for case managers. Electronic medical records have ALERT sections as well as RECALL features to track follow-up. Establish relationships with shelter staff who may be able to tell you where the family can be reached if they have left the shelter.
- **Financial barriers** - Most homeless children are eligible for Medicaid or SCHIP, but many are not enrolled. Both programs provide coverage for pharmaceuticals and medical supplies. Lack of health insurance and required co-payments for prescription drugs limit homeless families' access to treatment. Provide assistance with applications for entitlements (SSI/SSDI, Medicaid/SCHIP, Food Stamps, WIC). If the patient does not qualify for public health insurance, consider using the US Department of Health and Human Services' 340B Pharmaceutical Discount program (See http://www.hrsa.gov/opa/), if eligible, and/or pharmaceutical companies' patient assistance programs for low-income individuals. Free medication samples can also be used, but these may not be available on a continuing basis. Consider using manufacturer-sponsored patient assistance programs or gift cards to help offset costs of humidifiers, OTC medications, and other items useful for asthma management.
- **Improper equipment use** - Patients frequently use inhalers/spacers or nebulizers incorrectly, reducing medication effectiveness. Inhalers, spacers, peak flow meters and nebulizers are easily lost, stolen or damaged. Educate the family about proper equipment use and practical alternatives to manufactured spacers; help arrange for safe storage of equipment and medications.
- **Educational delays** - Recognize that uncontrolled asthma frequently results in loss of sleep, fatigue that interferes with learning, missed school days, and educational setbacks for homeless children (Mitchell et al., 2005). Monitor school attendance and work with the patient, family, and school to maintain good asthma control. Work with school nurses to assure that barriers to care are addressed. Collaboration with the school nurse will benefit the child.
- **Physical activity** - Well-meaning adults often try to limit the activity of children with asthma to prevent symptoms. Explain that physical activity is important; if the child is having difficulty, medications should be adjusted rather than limiting play and exercise.
- **Familial stress** - Social or familial stress can exacerbate asthma and threaten family relationships. A child with chronic illness presents another source of stress for a family already dealing with the highly stressful experience of homelessness. Help alleviate stress by facilitating access to stable housing and supportive services and coordinating with childcare centers and schools.

Follow-Up

- **Frequency** - Encourage the parent/guardian to bring the child back to the clinic within 3 to 7 days following the initial visit, and to bring all asthma and other medications to every visit. If spirometry is available and was done at the initial visit, repeat it at the follow-up visit. A visual demonstration of improvement in the child's pulmonary function may help motivate the child and parent/guardian to continue the preventive regimen.
- **Other providers** - Contact any other medical providers the patient sees regularly; inform them about the care you have provided, and with the parent or guardian's permission describe the child's current condition and living situation.
- **Referrals** - Refer the family to a mental health professional for psychological or social problems. Consider referring the family to a Failure to Thrive (FTT) or GROW clinic if the child has other medical issues. Explore options for temporary placement of children if the parent or caregiver needs inpatient care—for example, through foster care agencies, medical respite programs, or other family members.
- **Contact information** - Document the phone number of a relative or friend with a stable address who keeps in touch with the patient's family. Ask if the family has a cell phone; if so, record the number. Be creative about maintaining contact with the patient; consider shelters, childcare centers, or school contacts, with permission or in an emergency.
- **School attendance** - Document missed school days; coordinate services with the patient's school.
- **Outreach** - Connect with homeless outreach programs, homeless health care providers, and your local homeless coalition or other advocates for underserved populations in your community. For information about Health Care for the Homeless projects in your area, See: http://www.nhchc.org/HCHdirectory.html. Early Intervention services are available to many homeless children. These services, often provided in family shelters, may include education and referrals to meet the child's medical needs. Identify advocates in your community to help homeless families with medical, legal, and housing issues. An example of such a service is the Medical Legal Partnership for Children (MLPC) in Boston, MA.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

This guideline was adapted from the following source:

- National Asthma Education and Prevention Program (NAEPP)/National Heart, Lung & Blood Institute (NHLBI)/NIH. (2007). Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3): http://www.nhlbi.nih.gov/guidelines/asthma/index.htm.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Improved quality of asthma care and outcomes of that care for homeless patients

POTENTIAL HARMS

- Homeless providers should recognize the potential for misuse of short-acting beta-agonist inhalers because of their quick action and their street value.
- Providers should be cautious about prescribing long-acting beta-agonists because of the danger of overuse, which can happen inadvertently if multiple inhalers are confused.
- Albuterol is valuable on the street for enhancing a crack cocaine high.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The information and opinions expressed in the guideline are those of the Advisory Committee for the Adaptation of Clinical Guidelines for Homeless Patients with asthma, not necessarily the views of the U.S. Department of Health and Human Services, the Health Resources and Services Administration, or the National Health Care for the Homeless Council, Inc.
- Clinical practice guidelines for the treatment of asthma are fundamentally the same for both homeless and housed populations. Nevertheless, health care providers who serve homeless individuals must consider their living situation and co-occurring conditions in the plan of care. It is our expectation that simple adaptations of standard clinical practices will improve treatment adherence and patient outcomes. The recommendations in this guide were compiled to assist clinicians who provide asthma care for homeless adults and children. Many of these clinicians are practicing in targeted Health Care for the Homeless programs. Any clinician, however, regardless of practice site, may have homeless patients in his or her practice.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

This guideline was disseminated to the 205 Health Care for the Homeless projects that currently receive funding from the Health Resources and Services Administration of the U.S. Department of Health and Human Services. These and other adapted clinical guidelines published by the National Health Care for the Homeless Council are used in national and regional trainings designed for clinicians who work with individuals experiencing homelessness.

IMPLEMENTATION TOOLS

Personal Digital Assistant (PDA) Downloads
Pocket Guide/Reference Cards

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Judge D, Brehove T, Kennedy G, Langston-Davis N, Reyes T, Strehlow A, Post P, editor(s). Adapting your practice: treatment and recommendations for homeless patients with asthma. Nashville (TN): Health Care for the Homeless Clinicians' Network, National Health Care for the Homeless Council, Inc.; 2008. 32 p. [23 references]

ADAPTATION

This guideline was adapted from the following source:

- National Asthma Education and Prevention Program (NAEPP)/National Heart, Lung & Blood Institute (NHLBI)/NIH. (2007). Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3): http://www.nhlbi.nih.gov/guidelines/asthma/index.htm.

DATE RELEASED

2003 (revised 2008)

GUIDELINE DEVELOPER(S)

Health Care for the Homeless (HCH) Clinician's Network - Medical Specialty Society
National Health Care for the Homeless Council, Inc. - Private Nonprofit Organization

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GUIDELINE COMMITTEE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The Heath Care for the Homeless (HCH) Clinicians' Network has a stated policy concerning conflict of interest. First, that all transactions will be conducted in a manner to avoid any conflict of interest. Secondly, should situations arise where a member is involved in activities, practices or other acts which conflict with the interests of the Network and its Membership, the member is required to disclose such conflicts of interest, and excuse him or herself from particular decisions where such conflicts of interest exist. No conflicts of interest were noted during preparation of this guideline.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Bonin E, Brammer S, Brehove T, Hale A, Hines L, Kline S, Kopydlowski MA, Misgen M, Obias ME, Olivet J, O'Sullivan A, Post P, Rabiner M, Reller C, Schulz B, Sherman P, Strehlow AJ, Yungman J. Adapting your practice: treatment and recommendations for homeless patients with asthma. Nashville (TN): Health Care for the Homeless Clinicians' Network, National Health Care for the Homeless Council, Inc.; 2003. 28 p. [11 references]

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the National Health Care for the Homeless Council Web site.

Print copies: Available from the National Health Care for the Homeless Council, Inc., P.O. Box 60427, Nashville, TN 37206-0427; Phone: (615) 226-2292

AVAILABILITY OF COMPANION DOCUMENTS

Abbreviated versions of this and other adapted clinical guidelines for the care of homeless patients are available for download to hand-held devices from the National Health Care for the Homeless Council Website.

The National Health Care for the Homeless Council has developed a variety of resources to support health care providers in their service to persons experiencing homelessness. These resources are available for purchase as well as free download from the National Health Care for the Homeless Council Website.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on May 24, 2004. The information was verified by the guideline developer on June 24, 2004. This summary was updated by ECRI on December 5, 2005 following the U.S. Food and Drug Administration (FDA) advisory on long-acting beta2-adrenergic agonists (LABA). This NGC summary was updated by ECRI Institute on May 23, 2008. The information was verified by the guideline developer on June 4, 2008.

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